Horticulture & viticulture

Climate Vulnerability Assessment
Cherry (Lapin) Factsheet

Growing cherries (Lapin) in New South Wales: preparing for a changing climate

Climate changes offer opportunities and challenges to cherry growing in NSW by 2050.

Developing industry-informed climate planning information

Climate change is altering the growing conditions for many agricultural commodities across NSW. Primary producers need evidence-based information about the changing climate, and the risks and opportunities it may bring.

Through its Vulnerability Assessment Project, the NSW Department of Primary Industries is increasing the resilience of our primary industries by providing information and data to help the sector better plan for, and respond to, climate change. The project has determined climate change impacts for extensive livestock, broadacre cropping, marine fisheries, forestry, horticulture and viticulture, and important cross-cutting biosecurity risks to inform sound planning, risk management and adaptation decisions.

Cherries in NSW

NSW is Australia's third largest producer of sweet cherries, a high-value stone fruit. Increases in exports, particularly to Asian markets, have led to a rapid expansion in cherry plantings across the state since 2012.

The main NSW cherry producing areas are shown in Figure 1. There are approximately 420,000 cherry trees planted in NSW, producing over 5,500 tonnes of cherries in 2020-21 (Source: Australian Bureau of Statistics).

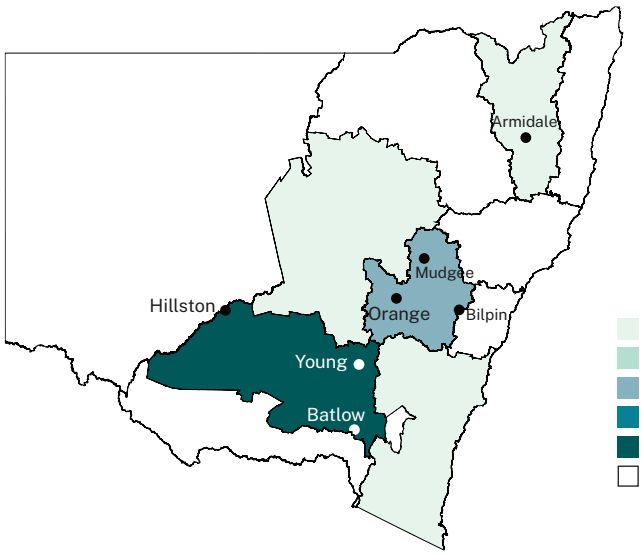

Figure 1.
The main cherry growing regions in NSW. Darker colours represent a larger production of cherries.

Department of Primary Industries

NSW GOVERNMENT

Climate and the cherry industry

Cherry growing regions in NSW will continue to have high to very high climate suitability for growing cherries by 2050 under a changing climate. Climate risks to the NSW cherry industry affect the phenophases of the cherry lifecycle in different ways.

Climate change risks to the NSW cherry industry include:

Extreme heat: Increased temperatures may affect cherry quality due to decreasing cherry firmness and size.

Insufficient accumulated chill: A warmer climate will likely decrease chill accumulation during bud dormancy, resulting in insufficient accumulated chill for good bud burst and flowering.

Frost: Reduced incidence of frost is likely to increase suitability for budswell, bud burst and flowering.

Climate impacts: what to expect

Dormancy is critical in winter for optimal flowering and fruit production. Armidale, Batlow and Orange are expected to maintain very high climate suitability for dormancy (*high confidence*). Bilpin, Mudgee, Young and Hillston are likely to experience slight reductions in chill accumulation during bud dormancy (*high confidence*).

Budswell and bud burst in Armidale, Batlow, Bilpin, Mudgee, Orange and Young is likely to experience an increase in climate suitability due to frost reductions (*high confidence*).

Flowering is the most important cherry phenophase affected by climate. The frost reductions associated with a warmer climate will likely benefit flowering in Batlow, Orange and Young (*high confidence*).

Cell division and cell expansion are expected to remain similar to historical levels, and all cherry growing regions are likely to continue to be suitable for cell division and cell expansion (*high confidence*).

Post-harvest conditions are important for bud initiation. Armidale, Batlow, Bilpin, Mudgee, Orange and Young will likely remain highly suitable for cherry growing (*high confidence*).

Cherry (Lapin) Quality

Cherry firmness is a key measure of fruit quality, directly linked to freshness. Due to projected temperature rises, without adaptation, Hillston is likely to have low suitability for optimal cherry firmness by 2050. Reductions in cherry firmness are also likely in Young, Mudgee and Bilpin (*moderate to high confidence*).

Irrigation water requirements

All cherry growing regions are expected to require more water for irrigation under a warming climate to reduce water stress and avoid doubled (deformed) cherries and deformed buds (*low to moderate confidence*). Growers may need to be more efficient with water use and may require new water infrastructure.

Methodology and data

Climate projections were sourced from Climate Change in Australia's 'Application Ready Data'. This dataset is comprised of projections from an ensemble of 8 global climate models, each presenting a plausible future climate. The models differ in their projections, giving rise to uncertainty in our modelling which is reflected in the confidence statements given in brackets in the text. Care should be taken when interpreting these results.

The Vulnerability Assessment Project is intended to highlight potential industry-or regional-level changes. Intermediate and high emissions scenarios were used in the assessments (RCP4.5 and RCP8.5), but these are not the only future scenarios possible. The inclusion of climate variables important to the commodities production was based on published research, expert knowledge and data quality and availability.

How to adapt

Adapting to extreme heat

Shade netting may reduce the effects of heat on cherry quality. Netting can protect fruit against sunburn and reduce skin temperature. Reducing the effects of the sun provides the fruit with a greater chance of being firm and large. NSW apple growers already use shade netting to cool fruit and are successfully preventing quality downgrades in hotter areas. This adaptation strategy may increase climate suitability and improve cherry quality.

Netting can also reduce damage to fruit from wind, hail, birds and bats, and decrease water loss through water evaporation.

Irrigation, such as overhead sprinklers or micro sprays, to cool cherries during harvest and post-harvest periods is another viable adaptation strategy. This sort of irrigation could reduce water evaporation and lower water demand. However, more research is needed to learn how to manage increased humidity in the canopy to avoid increased disease and rot.

Adapting to insufficient accumulated chill

Planting low-chill cherry varieties may be beneficial in regions with declining accumulated chill. These low-chill cherry varieties may open up new growing areas where cherries have not been previously grown.

Adapting to frost

A warmer climate will likely lead to less frost in the major NSW cherry growing regions. To further alleviate frost, fans can prevent frost damage to cherry flowers.

A changing climate may bring opportunities for expansion of the NSW cherry growing region into the Northern Tablelands, particularly around Armidale and Guyra, and in the Snowy Valley. Adaptation strategies to reduce the risk of hail damage in these areas will be necessary.

FOR MORE INFORMATION

Please get in touch with vulnerability.assessment@dpi.nsw.gov.au

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